REMARKS

Claims 1-7, 9-19, 21-22, 24-28, 31, 33-39 are currently pending in the subject application and are presently under consideration. Claims 1, 21 and 33 have been amended as shown on page 2-7 of Reply.

Favorable reconsideration of the subject patent application is respectfully requested in view of the comments and amendments herein.

I. Rejection of Claim 1 Under 35 U.S.C §112

Claim 1 stands rejected under 35 U.S.C. §112, second paragraph, due to certain informalities. Withdrawal of this rejection is requested in view of amendments to subject claim.

II. Rejection of Claims 1-3, 5-7, 9-12, 14-19, 21-22, 25, 31, 33-39 Under 35 U.S.C. §103(a)

Claims 1-3, 5-7, 9-12, 14-19, 21-22, 25, 31, 33-39 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Muller *et al.* (U.S. 6,480,489) in view of Crater *et al.* (U.S. 6,201,996). This rejection should be withdrawn for at least the following reasons. The cited references, either alone or in combination, do not teach or suggest all aspects of the subject claims.

> A factfinder should be aware, of course, of the distortion caused by hindsight bias and must be cautious of arguments reliant upon *ex post* reasoning. See *KSR v. Teleflex*, 550 U.S. ___, 127 S. Ct. 1727 (2007) citing Graham v. John Deere Co. of Kansas City, 383 U. S. 1, 36 (warning against a "temptation to read into the prior art the teachings of the invention in issue" and instructing courts to "'guard against slipping into the use of hindsight'" (*quoting Monroe Auto Equipment Co. v. Heckethorn Mfg. & Supply Co.*, 332 F. 2d 406, 412 (CA6 1964))).

The claimed innovation relates to facilitating optimized data transfers between an industrial controller and one or more remote client applications by mitigating the amount of information communicated across the network to the PLC. In particular, independent claim 1 recites *a primary aggregation component associated with an industrial controller,* ***the primary aggregation component aggregates one or more selected data items into an aggregated subset of data items by employing one or more of a beginning address of a first data item in a group, a length and values relating to the data items in the group****, the primary aggregation component*

defined and installed by an entity remote from the industrial controller; a communications component associated with the entity remote from the industrial controller, ***the communications component transmits the aggregated subset of data items via a singular communications packet across a network*** *and adds at least one secondary aggregation component based upon at least one of increased data demands and network protocol considerations; and a component associated with the entity remote from the industrial controller, the component receives handle information from the industrial controller relating to the selected data items* ***and employs the handle information as a reference with consistent length to generate an update data packet to update data locations in the industrial controller.*** Independent claim 21 recites *a method to facilitate data communications with an industrial controller, comprising: requesting tag information from a controller, building an object from the tag information provided by the controller, installing the object on the controller, updating object data on the controller, adding data items of interest to the object,* ***the data items arranged according to at least one of contiguous or non-contiguous address memory locations and receiving data from the object that has been updated by the controller, receiving handle information from the industrial controller relating to the selected data items and employing the handle information as a reference with consistent length to generate an update data packet to update data locations in the industrial controller.*** Independent claim 31 and 33 also recite similar limitations. Muller *et al.* and Crater *et al.* do not teach or suggest such aspects.

Muller *et al.* relates to a system and method are provided for transferring a packet received from a network to a host computer according to an operation code associated with the packet. Based on some of the retrieved information, a transfer engine stores the packet in one or more host memory buffers. If the packet was formatted with one of the set of predetermined protocols, its data is re-assembled in a re-assembly buffer with data from other packets in the same communication flow and re-assembled data is provided to a destination application or user. Examiner acknowledges that the primary reference, Muller *et al.* does not teach the claimed invention and provides a secondary reference, Crater *et al.*, to compensate for the after mentioned deficiencies of Muller *et al.* Crater *et al.* relates to communicating among programmable controllers for operating and monitoring industrial processes and equipment. Crater *et al.* provides an object-oriented control structure that facilitates communication between an industrial controller and a remote computer. The control structure is organized around a

database of object items each associated with a control function. For each control function, the items include one or more procedures for performing an action associated with the control function; and this reference does not teach the claimed features.

At page 3 of Office Action, it is erroneously asserted that Muller *et al.* teaches *the primary aggregation component aggregates one or more selected data items into an aggregated subset of data items*, with respect to independent claim 1. The reference (Muller *et al.*) provides for examining or parsing one or more headers of an incoming packet (*e.g.*, headers for the layer two, three and four protocols) in incoming network traffic *in order to identify the packet's source and destination entities. Using identifiers of the communicating entities as a key, data from multiple packets may be aggregated or re-assembled for a pair of communicating entity.* Typically, a datagram sent to one destination entity from one source entity is transmitted via multiple packets. Aggregating data from multiple related packets (*e.g.*, packets carrying data from the same datagram) allows a datagram to be re-assembled and collectively transferred to a host computer or to the destination entity in a highly efficient manner (*See*, Col. 8, lines 15-30). A parsing module on a host computer's network interface circuit (NIC) parses header portions of packets. *Using information extracted from the packets, multiple packets from one source entity to one destination entity are identified. A hardware re-assembly module on the NIC then gathers the data from the multiple packets for a pair of source entity and destination entity.* Another hardware module on the NIC is configured to recognize related packets awaiting transfer to the host computer so that they may be processed through an appropriate protocol stack collectively, rather than serially (*See*, Col. 8, Lines 52-67). A datagram is defined as a collection of data sent from one entity to another and comprises data transmitted in multiple packets for same sending and receiving entity. The amount of data constituting a datagram may be greater than the amount of data that can be included in one packet (*See*, Col. 14, lines 35-40). Hence, Muller *et al.* provides for identifying and gathering multiple packets for a pair of source entity and destination entity and sending those multiple packets collectively, rather than serially. More particularly, Muller *et al.* provides for *gathering the data from the multiple packets for a pair of source entity and destination entity.* Hence each pair of sending and receiving entities is identified for combining data packets belonging to same pair of sending and receiving entities. However, Muller *et al.* does not contemplate aggregating one or more selected data items in a data packet for a sending and receiving entity into an aggregated subset of data items *according*

to a beginning address of a first item in a group, followed by a length and then followed by the values relating to the items in the group. This feature facilitates mitigating repeated and redundant header and ending data that is generally associated with a network communications packet. *A plurality of related or unrelated* (not in contiguous memory portions or of the same data type) *data items are aggregated* and transmitted *in a singular communications packet*, thereby mitigating overhead associated with transmitting these items according to individual data item requests.

At page 4 of the Office Action, It is erroneously asserted that Muller *et al.* teaches *the component receives handle information from the industrial controller relating to the selected data items and employs the handle information as a reference with consistent length to generate an update data packet to update data locations in the industrial controller*, with respect to independent claim 1. The reference (Muller *et al.*) provides for identifying empty buffers into which packets are to be stored via a free descriptor ring that is maintained in host memory. A descriptor ring contains descriptors including data, flag, pointer and address for storing information. Each descriptor including data, flag, pointer and address stores its index within the free descriptor ring and an identifier including memory address and pointer of a free buffer that is used to store packets. *The buffer is identified in a descriptor by its address in memory* (*See*, Col. 55, lines 25-67 & Col. 56, lines 1-4). When a packet is stored in a buffer, a complete descriptor in a complete descriptor ring is configured to convey relevant information concerning the packet to the host computer. The complete descriptor stores header index, to identify the buffer that contains a header portion of the packet and a data index to identify the buffer that contains a data portion of the packet (*See*, Col. 5, lines 9-10). Hence, Muller *et al.* provides for only identifying empty buffers into which packets are to be stored. The buffer is identified in a descriptor by its address in memory and the descriptors include data, flag, pointer and address. More particularly, Muller *et al.* provides for employing complete memory address of the memory to identify empty buffer and storing data packets, wherein memory address is specified by descriptors including data, flag, pointer and address for storing information. However, Muller *et al.* does not contemplate *employing only the handle information as a reference with consistent length to generate an update data packet to update data locations in the industrial controller.* The handle information is similar to *an indirect address indication of the location of the requested data item in the controller.* This feature facilitates conserving the network bandwidth

by employing data type pointers or handles *rather than explicit name identifiers* or complete memory address (as employed in the system provided by Muller *et al.*) as part of an update header associated with an update request. This mitigates the need to use storage locations, pointers and explicit tags that are often lengthy and consist of variable lengths thereby causing variable and often larger amounts of data to be transmitted. The handle is employed as a consistent one or two byte data reference (or other consistent amount) that generally tends to mitigate the overall amount of data to be transmitted when compared to explicit tag references. The handle provides an indirect indication having fixed length (*e.g.,* handles providing 2 byte pointer as opposed to variable length explicit tag names), thus mitigating the amount of information communicated across the network to the PLC when indicating which data item is to be altered.

At page 11 of the Office Action, It is erroneously asserted that Muller *et al.* teaches *adding data items of interest to the object,* ***the data items arranged according to at least one of contiguous and non-contiguous address memory locations***, with respect to independent claim 21. The reference (Muller *et al.*) provides for identifying empty buffers into which packets are to be stored via a free descriptor ring that is maintained in host memory. A descriptor ring contains descriptors including data, flag, pointer and address for storing information. Each descriptor including data, flag, pointer and address stores its index within the free descriptor ring and an identifier including memory address and pointer of a free buffer that is used to store packets. *The buffer is identified in a descriptor by its address in memory* (*See*, Col. 55, lines 25-67 & Col. 56, lines 1-4). When a packet is stored in a buffer, a complete descriptor in a complete descriptor ring is configured to convey relevant information concerning the packet to the host computer (*See*, Col. 5, lines 9-10). Hence, Muller *et al.* provides for only identifying empty buffers into which packets are to be stored. The buffer is identified in a descriptor by its address in memory and the descriptors include data, flag, pointer and address. Nowhere Muller *et al.* does teach or suggest *adding data items of interest to the object,* ***the data items arranged according to at least one of contiguous or non-contiguous address memory locations.***

In view of at least the foregoing, it is readily apparent that the cited references, either alone or in combination, do not teach or suggest all aspects of the subject claims. Accordingly, this rejection should be withdrawn.

III. Rejection of Claim 13 Under 35 U.S.C. §103(a)

Claim 13 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Muller-Crater in view of Bhatt *et al.* (U.S. 6,097,399) This rejection should be withdrawn for at least the following reasons. The subject claims depend from independent claim 1, and as discussed *supra*, Muller and Crater do not teach or suggest all aspects of amended independent claim 1; and Bhatt *et al.* does not make up for the deficiencies of the primary references. Therefore, this rejection should be withdrawn.

IV. Rejection of Claims 25-26 Under 35 U.S.C. §103(a)

Claims 25-26 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Muller-Crater in view of Patel (U.S. 6,889,257). Withdrawal of this rejection is requested for at least the following reasons. As discussed *supra* with regard to independent claim 21, the cited references Muller and Crater, individually or in combination, do not teach or suggest all aspects recited in the subject claims. Patel does not make up for the deficiencies of Muller *et al.* and Crater *et al.* with respect to independent claim 21 (from which claims 25 and 26 depend from). Thus, it is respectfully submitted that this rejection be withdrawn.

V. Rejection of Claims 27-28 Under 35 U.S.C. §103(a)

Claims 27-28 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Muller-Crater in view of McCoskey et al. (U.S. 2003/0028889). This rejection should be withdrawn for at least the following reasons. The cited references, either alone or in combination, do not teach or suggest all aspects of the subject claims. As discussed *supra* with regard to independent claim 21, the cited references Muller and Crater, individually or in combination, do not teach or suggest all aspects recited in the subject claims. McCoskey does not make up for the deficiencies of Muller *et al.* and Crater *et al.* with respect to independent claim 21 (from which claims 27 and 28 depend from). Thus, this rejection should be withdrawn.

CONCLUSION

The present application is believed to be in condition for allowance in view of the above comments and amendments. A prompt action to such end is earnestly solicited.

In the event any fees are due in connection with this document, the Commissioner is authorized to charge those fees to Deposit Account No. 0-1063 [ALBRP284US].

Should the Examiner believe a telephone interview would be helpful to expedite favorable prosecution, the Examiner is invited to contact applicants' undersigned representative at the telephone number below.

Respectfully submitted,

AMIN, TUROCY & CALVIN, LLP

/Himanshu S. Amin/
Himanshu S. Amin
Reg. No. 40,894

AMIN, TUROCY & CALVIN, LLP
24TH Floor, National City Center
1900 E. 9TH Street
Cleveland, Ohio 44114
Telephone (216) 696-8730
Facsimile (216) 696-8731